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Global Monitoring Division Hot Items

Fifth and Final Pole-to-Pole Aircraft Study of Greenhouse Gases is Underway

Global Monitoring Division - ESRL-GMD

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Introduction: Six NOAA and twelve CIRES cooperative institute employees from the NOAA Global Monitoring and Chemical Sciences Divisions of ESRL are involved in the fifth and final HIPPO Pole-to-Pole Aircraft Study of Greenhouse Gases and Black Carbon (HIPPO/5) survey beginning on August 9, 2011, and ending on September 9. The month-long, twelve-flight survey of the complete troposphere will cover latitudes from 85° N to 67° S in Central Pacific Ocean over a total distance of 30,486 miles (or 49,052 km). The flight track begins in Broomfield, CO, precedes to Anchorage, AK, then to 85° N and back to Anchorage, Anchorage to Kona, HI, Kona to Rarotonga, Cook Islands, Rarotonga to Christchurch, New Zealand, Christchurch to 67° S and back to Christchurch. After returning from the Antarctic Ocean, HIPPO (or the GV) aircraft will follow the same route back in the opposite direction to Broomfield.

Background: This fifth aircraft survey samples the atmosphere in the Northern Hemisphere's late-summer, when plant respiration of CO₂ in the higher latitudes has begun, and in the Southern Hemisphere's late-winter. This completes a three-year airborne study of greenhouse gases and black carbon in the global lower atmosphere, with particular emphasis on the troposphere with altitudes less than 6 mile (or less than 10 km) for all seasons. The US National Science Foundation and NOAA support the airborne surveys, with participating scientists from NOAA/ESRL, NCAR, Scripps, Univ. of Miami, Princeton, and Harvard University. Prof. Steven C. Wofsy of Harvard is the principal scientist of the HIPPO surveys.

Significance: The significance of the HIPPO aircraft surveys to monitoring of global tropospheric profiles of greenhouse gases and black carbon is heightened after the recent launch failures of two climate satellites. This survey completes sampling of the troposphere from pole-to-pole in all four seasons for both hemispheres. These vertical profile data are critical to validating climate models. One of NOAA's four major goals is Climate and the work described here is in support in the Atmospheric Composition and Climate program of NOAA.

More information: <http://hippo.ucar.edu/>

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